CHEMONICS INTERNATIONAL INC.

Subsector Assessment of the Nigerian Cashew Industry

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FOREWORD

Under the Rural and Agriculture Incomes in a Sustainable Environment (RAISE) IQC, Chemonics International is working with USAID/Nigeria and the Government of the Federal Republic of Nigeria (GON) to stimulate Nigeria's economic growth through increased competitiveness in the world market. A key component of this effort centers on determination of specific agricultural products with the greatest potential for increasing foreign exchange and employment. While the project specifically targets increased agricultural commodity production and exports, it also seeks to boost domestic sales as well through opportunistic 'fast track' activities, which are loosely based on development of networks and linkages to expedite trade.

At a stakeholders' conference in Abuja Nigeria in January 2002, participants identified five Nigerian products that held the greatest potential for export growth. Chemonics was charged with conducting subsector assessments of these products, and then developing industry action plans (IAPs) for those that indicated sufficient market opportunities.

The following subsector assessment examines market trends, opportunities and constraints, both international and domestic; production and processing requirements; operating environment issues; and recommendations to address the needs of the Nigerian industries. A separate IAP provides a strategic framework for actions the Nigerian and international private sector, Nigerian government, and donors should undertake to improve the viability of these industry clusters.

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Rate of Exchange (ROE): $US 1 = ₦ 117

EXECUTIVE SUMMARY

Long-term neglect of the cashew industry in favor of oil production has left Nigeria behind the pack in competing for a global cashew market worth $1 billion. Changes in consumption patterns, brought about by such drivers as time constraints, health concerns, and novelty products have opened the door to cashew producers, processors, financiers, exporters, etc. who have the wherewithal to capitalize on opportunities afforded by a market growing steadily at 5% per annum. Nigerian stakeholders can potentially share in a long-term investment that can develop into a $74 million market in Nigeria over the next ten years, with an almost threefold increase in the industry's employment level.

Table 1: Income Generation and Job Creation

Criteria	Base yr (2003)	2 yrs (2005)	5 yrs (2008)	10 yrs (2012)
Traditional Kernel Export	$6.0 M	$8.0 M	$19.0 M	$38.0 M
Organic Kernel Export	$ 0	$ 3.0 M	$6.0 M	$15.0 M
Raw Nuts Export	$17.0 M	$17.0 M	$19.0 M	$21.0 M
Total	$23.0 M	$28.0 M	$44.0 M	$74.0 M
Total Job Creation (processing)	122, 000	153, 000	246, 000	375, 000

Cashew has tremendous potential as a "cash crop" to generate foreign exchange and to create employment, especially for women, as well as curb desertification in the North and erosion in the South. The drought resistant, environmentally friendly cashew tree grows in the wild throughout Nigeria, leading to niche development opportunities in providing organic cashews with little additional financial burden to current production. There is a large and growing domestic and regional market for surplus kernels, as well as other cashew by-products. West Africa is now the major supplier of raw materials to the Indian processing powerhouses; cooperation between major exporting countries in West Africa could leverage improved prices. In addition, several USAID projects in Mozambique, Kenya, Tanzania, Ghana, and Nigeria could be linked to create a significant critical mass of African organic cashews.

Nigeria faces several challenges to improving its cashew production and processing. Many existing cashew trees have reached the end of their productive cycle, and the majority that still bear fruit produce small nuts of low value. The industry focuses on low-end raw nut production, losing substantial income to countries like India and Vietnam by not focusing on value added products like the cashew kernel. Moreover, Nigeria receives the lowest international prices in Africa for its raw nuts due to concerns over production, processing, post-harvest handling. The few companies that have managed to carve a toehold in the $1 billion cashew kernel market have a negligible market share and face extremely high competition.

In order to penetrate this billion-dollar industry, the Nigerian cashew industry must seek to ***transform Nigeria from a low-priced commodity producer to a reliable supplier and exporter of high quality cashew products (organics, kernels, etc.).*** This effort would include four major activities upon which to develop further implementation:

1.) Increased volume and unit value of raw nuts and kernels
2.) Extension and awareness activities to expand cultivation and processing in rural areas
3.) Establishment of a Commodity Business Bureau (CBB)
4.) Penetration of the organic kernel market and potential markets for cashew by-products

Increases in the volume and value of Nigerian cashew may come through individual endeavors, but for the industry to succeed as a whole, cashew stakeholders - including producers, processors, exports, financiers, and others – must receive technical assistance on several different levels. In the long-term, this assistance would come through a Commodity Business Bureau (CBB) that would ensure sustainability of the industry's efforts. In the immediate term, however, another mechanism must be found. In Nigeria, this would be a cashew trade association. The trade association would arrange initial dissemination of information and training while the CBB is being developed. Once the CBB is developed, it would take the burden of providing higher-level coordination and provide technical assistance to the trade association, while the trade association would be able to focus more on firm-level assistance and industry marketing efforts. The CBB would eventually expand to provide assistance for other agricultural industries, achieving economy of scale.

I. THE INTERNATIONAL CASHEW INDUSTRY

A. Introduction

Figure 1: Cashew Tree

Native to Brazil, the cashew tree was 'discovered' by the Portuguese in the 16th century and introduced into Mozambique and India. The tree spread to a number of other countries in Africa, Asia and Latin America. Cashew now grows widely across the tropics under a range of conditions from managed plantations, through smallholding plots, to semi-wild or wild populations. Trade in the cashew industry revolves primarily around the raw nuts and kernels, although the cashew apple and the cashew shell both present other marketing opportunities. Raw cashew nuts comprise the principle foundation for a market globally worth more than $500 million at current raw cashew trading levels. The market for cashew kernels, processed to provide more value, is worth more than $1.0 billion. Today, three countries – India, Brazil, and Vietnam – dominate the cashew industry.

B. Cashew Products

Cashew, *Anacardium occidentale*, is a spreading evergreen tree that grows to a height of at least 25 feet (figure 1); dwarf varieties that grow to nine feet are now available. Cashew trees start bearing fruit after a 2-4 year gestation period and continue to produce for 25-30 years. New dwarf varieties have a gestation period of 1-2 years and also produce for over 20 years. The cashew tree is strictly tropical and is killed by the slightest frost. The best climatic conditions are found in the tropical coastal lowlands where there is a well-defined dry season of at least four months. Once established, the plant is hardy and drought resistant; its deep, extensive root system allows it to survive in areas where soils and climate are considered marginal for agricultural production. Although the tree will not produce fruit in areas of very low rainfall, the edible young leaves and the wood are still valued.

The true fruit of the tree is a small kidney shaped nut that hangs below a much larger false fruit (see Figure 2). The edible false fruit, called cashew apple, is pear-shaped, with a waxy appearance, and turns yellow when ripe. The unripe cashew apple is astringent and slightly acidic. When ripe, it has a characteristic apple flavor and can be eaten fresh or dried or processed into juices, jellies and wines.

Figure 2: Cashew Apples with Nuts Attached

The nut consists of a smooth tough shell surrounding an edible kernel. This kernel is what the tree is primarily valued for. The cashew shell contains a corrosive phenol, cashew nut shell liquid (CNSL), which must be extracted before the shell can be

removed to yield the kernel. CNSL has found many applications in the polymer-based industries - the most important use is in the manufacture of brake linings and clutch facings in the automotive industry. Covering the kernel is a thin tannin rich skin, the testa, which must also be peeled away before the kernel can be consumed.

Table 2: Cashew Products

Input	Products	Description and Uses
Nuts	Kernels:	Raw nuts are processed into kernels by boiling, cracking, decorticating and roasting.
Apple	Prunes:	Cashew prunes, produced by boiling the cashew apple in molasses, is very similar to dehydrated prunes or dates.
Apple	Juice:	Cashew fruit is pulped by grating or pounding and the juice is pressed out and strained. Cashew juice has five times more citric acid than orange juice and is thus a good source of preservation acid medium when mixed with other fruit juices or vegetables.
Apple	Wine:	The juice from the cashew fruit can be processed into wine using the conventional method of producing fruit wines. The alcoholic content averages 18%.
Apple	Pulp:	The fibrous pulp obtained after extracting juice from the cashew apple can be used as animal feed or dried and processed into diet fiber biscuits.
Shell	CNSL:	Extracted from the cashew shell, Cashew Nut Shell Liquid (CNSL) is used in the manufacturing of paints, varnishes, resins and brake linings.
Shell	Fuel Wood	After extraction of the shell liquid, the spent shells are used as a processing fuel.

C. Markets

C.1. Consumer Demand

The overall market for edible nuts – walnuts, almonds, macadamia, pecans, etc. has increased, particularly as consumers increasingly consider nuts as health food, albeit one with a high fat content. Products such as honey-roasted peanuts, chili-coated peanuts and tropical nut blends have been introduced into the market to meet consumer demands, and many traditional foods e.g. bread, corn flakes, chocolate, salads and bakery products, are now enriched with nuts.

Although the sales of some basic nut products, such as peanuts, have been static, the premium nut market, i.e. cashews, pistachios, etc., has been doing well. Cashews are among the most popular nuts, although sales are restricted due to high prices. They have low levels of saturated fats and soluble sugars; contain high percentages of proteins and polyunsaturated fatty acids to reduce cholesterol levels in the blood; and have high levels of mineral salts.

Since cashew production is restricted to the tropics, the kernel demand in the temperate markets must be met through imports. The cashew kernel is used in the snacks, confectionery and bakery industries, with at least 60% of kernels consumed as snacks. Kernels are popular as a roasted and salted nut for snacking, and whole, larger kernels are preferred for this purpose. The remaining

percent, composed primarily of pieces of inferior grades based on size and color, is supplied to the bakery and confectionary sectors for chocolate and candy making.

C.2. Raw Nuts

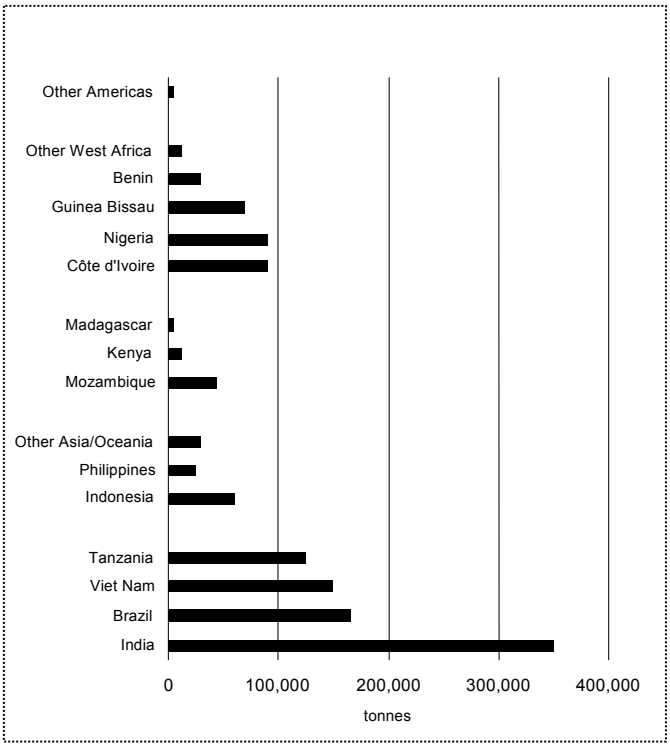
C.2.a. Production

Four producers, India, Brazil, Vietnam and Tanzania, dominate the output of cashew nuts. Other key producers include West Africa and the Far East. It is difficult to provide an exact assessment of global production, as information is closely held in this competitive market; commonly quoted figures provided by the Food and Agriculture Organization (FAO, 2001) suggest a global output of 1.4 million tons per year. Approximately 900,000 tons of raw cashew nuts enter the international market annually. For the purposes of this subsector assessment, the authors have focused on ***quantity commercialized*** as the key consideration for development of Nigeria's export cashew industry.

Table 3 provides an indication of the relative scale of the annual availability of raw cashew nuts in the major producing countries. The numbers cited illustrate the difficulty of ascertaining true figures in this market. For example, the Indian national authorities estimate production at 520,000 ton, whereas trade sources accept 350,000 ton (or even 250,000 ton) as a better estimate of availability. Best estimates for Nigeria suggest an annual production of 80,000 – 100,000 tons. This differs markedly from the FAO estimate of more than 180,000 tons. This difference may reflect an excess capacity for supply that is not being commercialized. Due to a lack of documentation, numbers cited for Nigeria are derived by working backwards from import records from buyers, and informal information sources in Nigeria.

Broadly speaking, the West African harvesting season coincides with the Indian harvesting season. Harvesting in West Africa begins early in the year and extends to June, with the first shipments taking place between March and April. Timing of demand from India will depend on the progress and size of the Indian crop and, even more, on the demand for kernels. The East Africa harvest is counter seasonal, beginning in Kenya in August/September and ending in Mozambique around December.

Table 3. Global Production of Cashew Raw Nuts (2001/2002)



Source: Compiled from National statistics, trade comment and authors estimates

C.2.b. Trade

India is the largest buyer of raw nuts, followed by Vietnam and Brazil, and the raw nut trade is primarily focused on the Indian requirement. India and Vietnam import raw nuts in order to keep processors in operation year-round. Table 4, taken from Indian import figures, illustrates that India has been increasing its raw nuts imports at an average of 12.6% per annum, and that Africa supplies 90% of India's raw nuts requirement. While Asia has declined in importance as a supplier, West Africa has been the fastest growing source of raw nuts globally.

Table 4: India's Imports of Raw Cashew Nuts (MT)

	1993/94	1996/97	1999/00	Trend	Per Annum (%)
W Africa	51,482	61,260	110,000	↗↗	49%
E Africa	80,219	88,149	109,400	↗	17%
Asia	59,000	52,155	10,760	◄	
Other	621	11,288	12,523	→	
Total	**191,322**	**212,852**	**242,683**	↗	**12.6%**

Source: Indian Import Data Key: ↗ increasing, = flat, ◄ falling, ↗↗ increasing over 10% per annum

Table 5 provides more detailed information on the West African export trade in cashew raw nuts. Comparing Tables 4 and 5, we estimate that roughly 25-30% of West African exports are shipped to Vietnam. Previously Nigeria sold the majority of its raw nuts almost exclusively to India, but Vietnam now buys 40% of Nigerian's exports.

Table 5: Export Volume of West African Raw Cashew Nuts (1998-2000)

Country	Export (MT)
Nigeria	30,000
Benin	26,000
Côte d'Ivoire	60,000
Guinea Bissau	50,000
Other	11,000
Total	**177,000**

Source: consultant's estimates

C.2.c. Pricing

Imported raw nuts are sold in India in 80kg sacks. The basis for determining the value of imported raw nuts is relatively unsophisticated with the price per ton quoted by origin and by outturn. Outturn is the estimated kernel yield of a bag quoted in pounds; for example, Mozambican 44/45 or 48/52. Thus a 176lb (80kg) sack of Mozambican raw nuts will yield an outturn of 44 – 45lbs (20 – 20.46kg), approximately 25%, or 48 – 52lbs (21.82 – 23.64kg), approximately 28% of kernels. Buyers base their estimates on the weight of a cut sample, in addition to the appearance of the raw nuts and their moisture content.

There are no regularly published prices or records of prices paid over the season, due to the fiercely competitive nature of the industry. Prices for this assessment were obtained in Cochin, Southern India, where most of the raw nut trading is concentrated. The fall in raw nut prices since 1999 mirrors the collapse in kernel prices, although raw nut prices have increased somewhat since publication of this table. Côte d'Ivoire raw nuts are trading at $550-575 and Guinea Bissau at $650-700. High quality raw nuts from Southern Tanzania (CDJKL & DSM refer to the administrative regions) yield good outturns and command the highest prices. Nigerian nuts trade at a discount for several reasons, including the generally small size of the nuts and difficulty in peeling the testa, as well as a poor reputation for quality and reliability.

Table 6: Indicative Prices for Raw Cashew Nuts (2001-2002 Season)

Origin	Quote US $/ton (c&f Cochin)
Nigeria	420
Benin	525
Côte d'Ivoire	490
Guinea Bissau	No quote
Kenya	No quote
Tanzania DSM	530
Tanzania CDJKL	630
Mozambique	530
Madagascar	450

Source: Samsons Trading Co. Pvt. Ltd., India Feb 2002

C.3. Cashew Kernels

Cashew kernels represent the next step in processing of raw nuts, a step that India and Brazil have long profited on, and which is being attempted by many other cashew exporting countries. Vietnam, Tanzania, Mozambique, and others are all seeking to focus on export of processed kernels as the logical step in building their industries. The numbers below substantiate these efforts.

C.3.a. Processing Technology

Before the nut can be consumed, the shell must be removed to release the kernel. This decortication is difficult and labor intensive. It is not a process that can be carried out by the consumer, as in the case of almonds or walnuts; neither is it viable to shell cashew nuts in developed economies where labor costs are high. It is critical to understand that although the shelling adds value to the product, the increase in value reflects the low yields of kernels, at around 22 - 24% of the raw nuts input. One ton of raw cashew nuts yields 150kg – 250kg (15-25%) of decorticated kernels; this includes all grades, from wholes to pieces. Of these decorticated kernels the yield of wholes will vary from 55% to 85% depending on the process and the skill of the operators.

A typical distribution of decorticated kernel grades:

WW320	25 - 30 %
Superior grades	25 - 30 %
Inferior grades	20 - 25 %
Rest	15 - 20 %

Cashew nuts can be shelled at the village level and there is significant local consumption throughout the growing regions. However, for export, volume output must be consolidated and the fragile kernel requires specialized packaging. Shelling therefore is usually centralized in processing factories, which may be entirely labor-based.

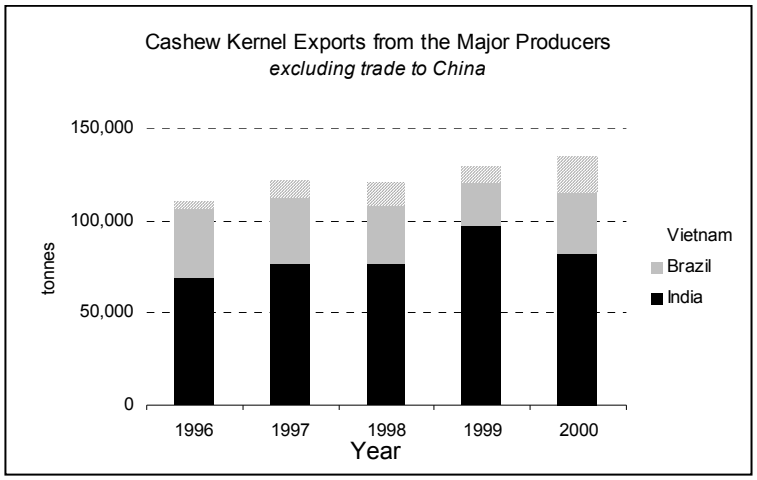
Cashew processing using manual techniques was started in India between the two World Wars, and India has dominated the shelling of cashew nuts for most of the twentieth century. India currently dominates processing, with an annual throughput of some 500,000 tons of raw nuts per year.

In the 1960s, steps were taken to mechanize cashew processing. Brazil utilizes mechanized processing technologies, and other countries, such as Japan and Italy, have contributed to the development of the mechanized technology. Mechanization allows each producing country to process their raw nuts domestically, while exporting the two products, kernel and shell liquid, thus creating more local jobs. Attempts were made in Africa to mechanize the process, since labor-based operations had not succeeded, but most of these mechanized plants failed. Vietnam uses a mix of efficient manual and automated functions.

C.3.b. Trade

International trade in cashew kernels has grown strongly in the last 10 years. Trade data shows that over 175,000 tons are now exported per year compared to 65,000 tons at the end of the 1980's. Figure 3 charts the growth in this trade, showing the increase in Indian output and the dramatic appearance of Vietnam as a supplier of cashew kernels to rival Brazil. These three exporters supply over 90% of the kernels traded internationally.

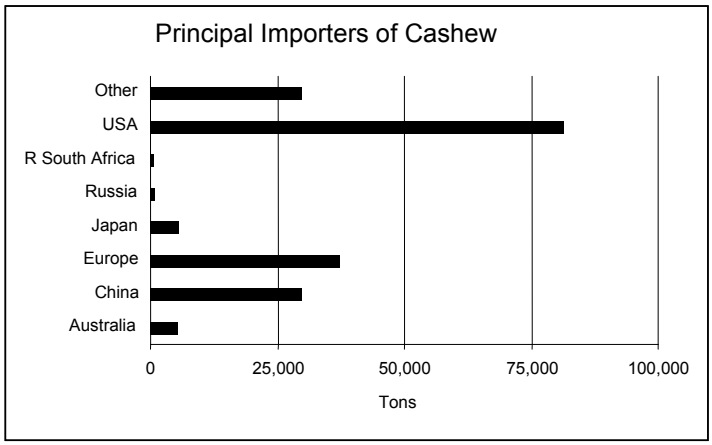
Figure 3: Cashew Kernel Exports from the Major Producers



Source: Import Statistics; Secretariat of Foreign Trade, Brazil;
Directorate of Customers Information, India

The principal importers of cashew kernels are the USA and the EU. There is also significant consumption in China, Japan, Australia and the Middle East. Figure 4 shows the major importers in 2000. The figure for China is estimated since a substantial cross-border trade with Vietnam apparently goes unrecorded.

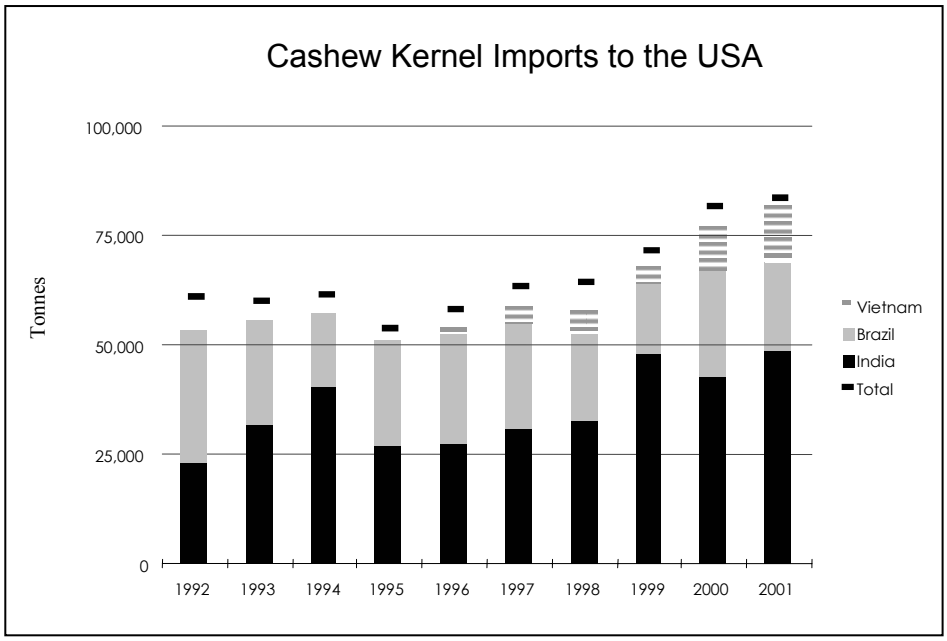
Figure 4: Principal Importers of Cashew Kernels (Year 2000)



Source: World Trade Atlas and National statistics

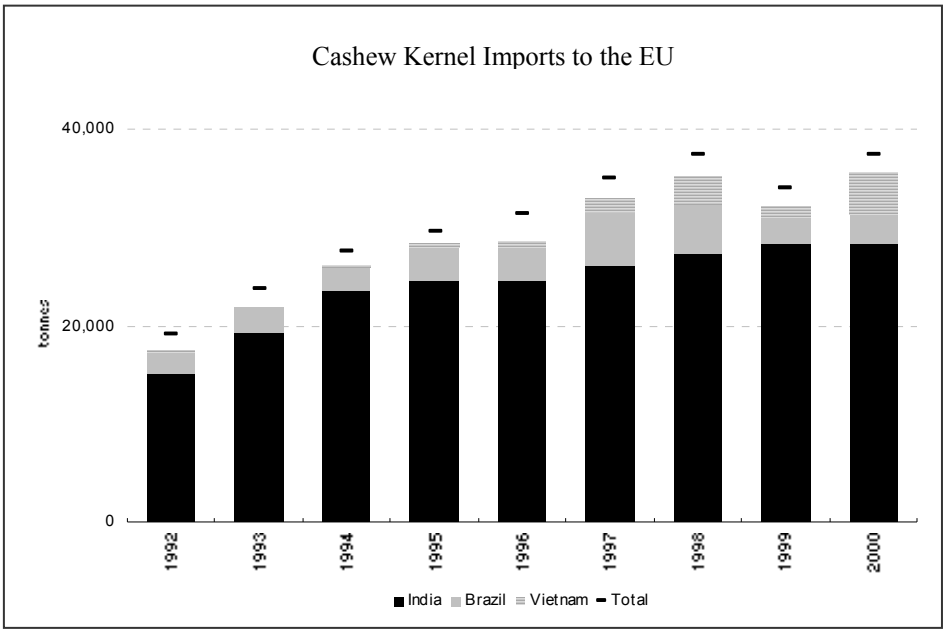
Imports into the USA and the EU have grown strongly over recent years as shown in Figures 5 and 6.

Figure 5: Cashew Kernel Imports to the USA



Source: EUROSTAT

Figure 6: Cashew Kernel Imports to the EU



C.3.c. Pricing

Table 7 lists the current prices and several grades of internationally traded cashew kernels. The benchmark grade is W320, referring to a whole white kernel of a size that gives 320 kernels to a pound of weight.

Table 7: Cashew Kernel Prices as at June 2002

Grade	Description	Price in US Dollars ($)/lb*
W180	White whole kernels, 180 kernels/lb	3.30 – 3.40
W210	White whole kernels, 210 kernels/lb	2.75 – 2.80
W240	White whole kernels, 240 kernels/lb	2.30 – 2.35
W320	White whole kernels, 320 kernels/lb	1.80 – 1.85
W450	White whole kernels, 450 kernels/lb	1.45 – 1.55
SW320	Scorched white kernels, 320 kernels/lb	1.50 – 1.55
SW360	Scorched whites kernels, 360 kernels/lb	1.45
SSW	Scorched split wholes	1.15 – 1.25
FS	Fancy Splits	1.45 – 1.50
FB	Fancy Butts	1.40
LWP	Large white pieces	1.30
SS	Scorched splits	1.20 – 1.25
SB	Scorched butts	1.20
SP	Scorched pieces	0.70 – 0.80

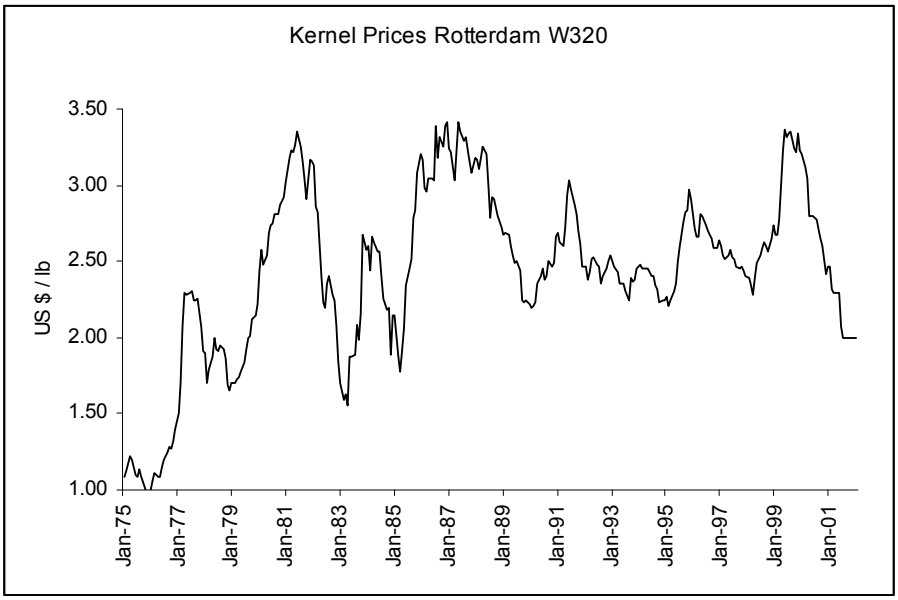
Source: Samson's Trading Co. Pvt. Ltd., India * FoB - Freight on Board

Prices for cashew kernels are currently low in US dollar terms. Figure 7 shows that the levels are at their lowest point in 17 years. However, the figure also shows the repeated pattern of rises and falls in the cashew kernel market. There is no indication of falling demand, rather the supply of kernels has increased significantly in the last two years and it may be some time before the consumption catches up. In the meantime, there are increasing disparities between prices for different grades as the larger grades of kernel remain in short supply while some of the inferior or even standard grades are over supplied. It is therefore a complex market to trade but the prospects for increasing consumption are good.

It is expected that the current price levels will encourage consumption of cashews in the USA. However, in Europe, where most of the EU member states now belong to the euro zone, the comparative weakness of the euro against the dollar has cancelled out the benefit of low dollar prices to the extent that in euro terms prices are back at 1998 levels. No price encouragement for consumption is therefore expected.

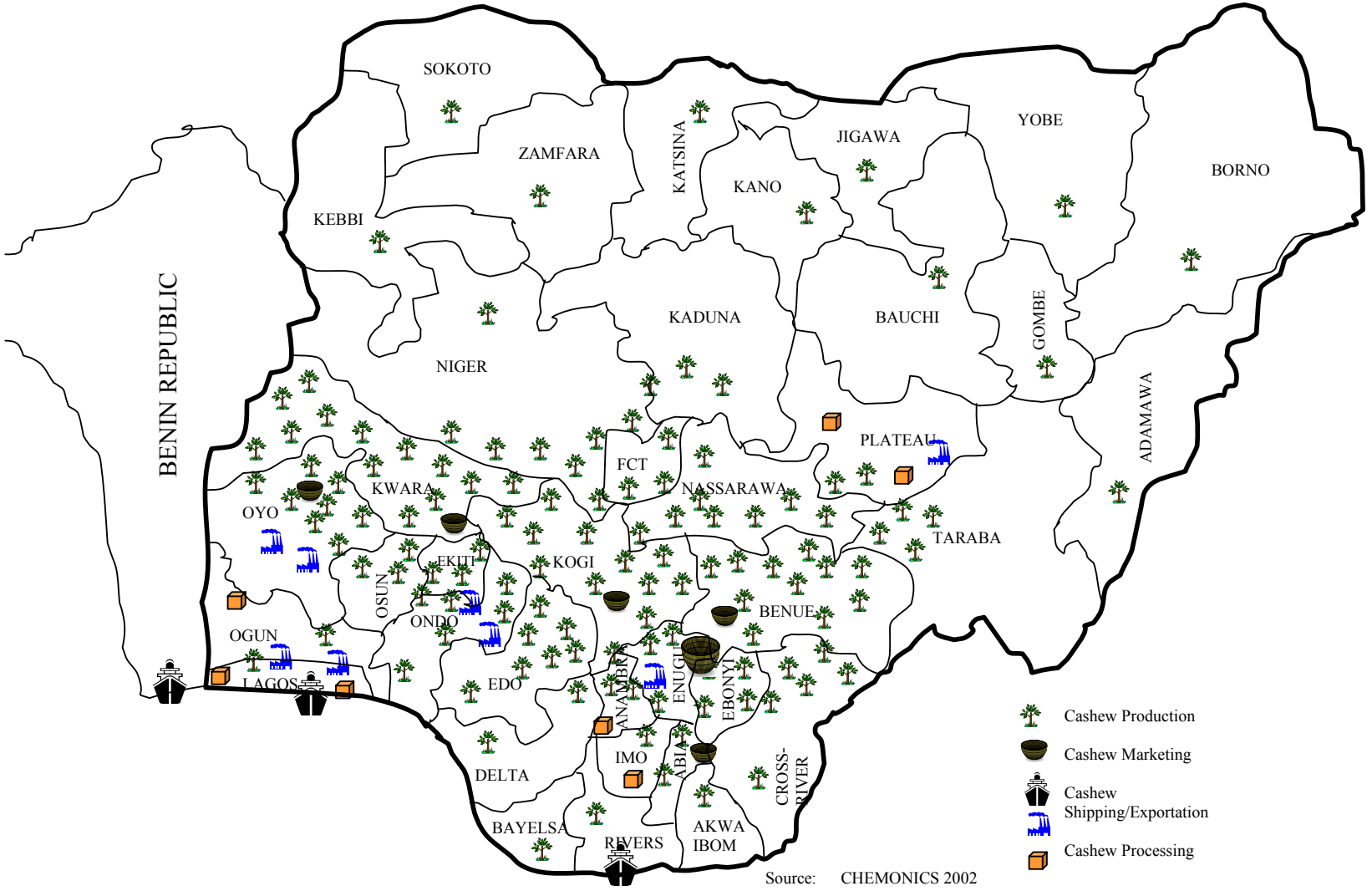
Trade sources also suggest that India hoarded kernels and then flooded the market hoping to deter (but more likely to stop) the entry of Vietnam. This resulted in the low kernel prices. The strategy did not work, however; Vietnam is a formidable competitor, already receiving a premium of 10 – 20% over Indian kernels. And as of this date, kernel prices have started to rise.

Figure 7: Kernel Prices Rotterdam W320



Source: Samsons Trading Co. Pvt. Ltd., India

Figure 8: Map of Nigeria showing cashew activity areas



II. CURRENT STATUS OF THE NIGERIAN CASHEW INDUSTRY

A. Introduction

Cashew grows almost everywhere in Nigeria but is concentrated primarily in the southern and middle belt regions (see figure 8) in smallholder farmers. Cashew has only one production season in Nigeria. Cashew trees start flowering from November through December and fruiting begins in February. Harvesting starts in late February and continues until late May or early June. The trees start bearing fruit after a 2-4 year gestation period. Productivity starts to rise from the fifth year and peak production occurs after 10 years of planting. The cashew tree continues to produce for 25-30 years with a substantial yield reduction after 30 years. Due to the long gestation period cashew production is considered a long-term investment.

Cashew is commonly propagated by seeds, which are planted directly on an already prepared plot to coincide with the major rainfall season. Under normal conditions, the cashew seeds remain viable for up to twelve months. Cashew is seldom propagated through seedlings and grafting, although vegetative propagation combined with grafting is considered the better practice. Farmers, particularly at the rural smallholder level, commonly obtain seeds from neighboring farms for free or as barter. Varieties commonly grown by farmers are normally intercropped with arable crops within the first 5 to 7 years, after which the cashew trees have formed complete canopies and start generating income.

Nigeria produces several varieties of cashew, although dwarf varieties are currently not available. While the majority of Nigerian cashew trees, 60-80%, produce small nuts, Nigeria also produces the Brazilian jumbo, which yields larger nuts. Kosoni-Ola Farms, at Okerimi-Oro, Kwara State, imported the Brazilian jumbo from Brazil in 1986. The fact that Nigeria produces Brazilian nut doesn't appear to be well-known within the industry; several officials cited Brazil as the only supplier of Brazilian nuts. Several other plantations such as Jof Ideal, Owo; NYSC farms, Kwara State; and Ogbeh farms, Benue State have purchased planting materials (seeds and seedlings) from Kosoni-Ola.

Farmers rarely, if ever, apply chemical fertilizers and pesticides. Analeptis – the cashew stem girdler – is the predominant cashew pest in Nigeria, however, no major outbreak of cashew pests and diseases have been recorded. Manual weeding utilizing cutlasses is standard practice due to the cost of agrochemicals and herbicides, so the majority of Nigerian production is considered "organic".

Once mature, the fruits with nuts attached, fall to the ground and are gathered manually. However, in some producing regions, the fruit is plucked fresh from the tree for sale. Although this practice provides money for the apple, it produces immature nuts, which are small and sometimes empty, i.e., no kernel inside, and of no commercial value.

Once picked, the fruit is detached from the nut. Cashew nuts are then dried for 3 to 5 days and sold in bowls/calabashes at local markets and buying centers. The drier the climate, the better the nut and the decrease in incidence of mold while in storage and shipping. Nassarawa State is cited as an excellent source of dried raw nuts. Isuochi and Okigwe areas of Abia State have also been mentioned for practicing exceptional post harvest handling techniques, allowing the fruit to mature and drop from the tree before picking; their nuts are also thoroughly dried.

B. Market

Local consumption of cashew kernels follows the same market patterns as the international trade. The large sized kernels are consumed as snacks while the smaller splits, bits and pieces are used for cooking by bakeries, confectioneries and restaurants, particularly Chinese cuisine.

The suppliers of cashew kernels to the local markets include factory processors (e.g. AgroPro; Cashew Nuts Processing Industry, Ibadan; Fugard, etc.), who supply to the supermarkets and restaurants/hotels while artisan processors process and package the kernels in nylons and recycled bottles for sale at the local markets and streets throughout Nigeria (see Figures 9 and 10). Some regional trade exists, as local traders purchase kernels from Benin Republic – Cotonou. All local processors and traders interviewed cited a short supply of kernels.

Figures 9 and 10: Popular Brands of Locally Roasted Kernels in Nigeria

Fig 9: Purchased from the Supermarkets

Fig 10: Purchased from Street Hawkers/Traders

B.1. Raw Nuts

B.1.a. Production Figures

The actual hectarage of cashew under cultivation, as well as their output is difficult to estimate, as there are no reliable published statistics. According to published Food and Agricultural Organization (FAO) figures for 2000 and 2001, Nigerian cashew production was reported to be 184,000 MT, a figure that local experts believe to be inflated. Using a combination of national statistics, export and local consumption figures, estimates place the actual production at approximately 80,000-100,000 MT. The major producing Nigerian states are Benue, Kogi, Kwara, Oyo, Enugu, Abia, Anambra, Ekiti and Imo.

Approximately 70-90% of Nigeria's cashew crop grows on smallholder farms. Past efforts to develop plantations largely failed. Commercial cashew plantations started simultaneously at Oghe, Oji River, Udi and Mbala by the then Eastern Nigeria Development Corporation; and at Iwo, Eruwa, and parts of Upper Ogun by the Western Nigeria Development Corporation in the 1950's. Many of theses plantations are now dormant and need to be replanted. In the late 1980's and early 90's, several private plantations were developed in the Middle Belt (Kogi, Kwara, Benue, Plateau and Nassarawa States) and the Southeastern states of Enugu, Ebonyi, Anambra, Imo and Abia States. Of the Southwestern states, Oyo State has the largest hectarage under cultivation compared with Ekiti, Osun, Ondo and Ogun States. Several local governments, including that of Cross River State, have expressed interest in cashew plantations.

B.1.b. Trade

Approximately 30% of recorded Nigerian raw cashew nuts (valued at approximately $12 million) are exported to the major processing countries, such as India, Brazil and recently, Vietnam, for further value-added processing. Approximately 10% more goes unrecorded through Lagos port and/or neighboring Cotonou, Benin Republic, where they receive a 20% premium. Roughly 30-40% of raw nuts are processed into kernels, the majority of which is for local consumption. A couple of Nigerian producers currently supply some US and UK brokers with cashew kernels.

There are usually two major buying outlets at the village level - buying centers and local markets. Buying centers are located in major producing areas where farmers can sell their products. These centers usually buy several commodities, depending on the seasonality of the product mix. A center is usually operated by an agent who performs preliminary quality checks and arranges bulk storage for the buyer. In some instances, the buying agents are provided with pre-financing to purchase cashew at an agreed price. After a sizeable volume has been accumulated, the quality is certified by the agent in terms of size, nut count (nuts per kilogram), total defects (which must be no more that 10%), kernel output ratio (KOR) - not less that 44 (i.e. 44lb (20kg)/80kg sac, ~25%), moisture level, and void (a sample size of nuts are cut in half and/or placed in water, and the empty shells float to the top). A truck (usually 10MT capacity) or a trailer (usually 30MT capacity) is then used to transport the nuts to local processors and/or exporters.

The major buying market for cashew is Oba, located in the northern part of Enugu State in the heart of the major cashew production region. Several exporters and processors purchase cashews at this market, and it attracts suppliers throughout the south eastern region.

The raw nuts are either exported or further processed into kernels for local consumption and/or export. Local experts have compiled the estimates in Table 8, as there are no reliable statistics for exports and local consumption.

Table 8: Nigeria Cashew Raw Nuts Production and Value (2001)

Production (MT)	Value US$	Use
30,000	12,600,000	Exported through Nigerian ports (recorded)
10,000	4,200,000	Exported through Republic of Benin
10,000	6,000,000	Processed into kernel for export
30,000	21,600,000	Processed into kernel for local consumption
10,000	0	Residual – left on ground
90,000	**44,400,000**	**Total**

Olam Nigeria is the largest exporter of raw cashew nuts, exporting roughly 15-17% of local production, or half of all recorded exports. Smaller traders export the rest, roughly 15,000MT. Approximately 10% of raw cashew nut leaves Nigeria unrecorded, either through the Nigerian port or Nigeria's neighbor, Republic of Benin. There is a huge financial benefit accruing to exports through Benin's major export port Cotonou. As stated earlier, Nigerian raw nuts receive the lowest international price of all of the exporting countries. On the West African coast alone, Nigerian nuts historically receive a 15-20% discount in relation to its ECOWAS neighbors. During the 2001-2002 season, cashew originating from Benin attracted $95/MT premium over Nigerian at $525/MT versus $420/MT respectively, a 20% premium. Assuming $20/MT

transportation cost from Nigeria's western region to Cotonou, a potential margin of $75/MT, 17% premium, is possible.

B.1.c. Prices

A slightly lower price kicks off the harvest season in January when the matured fruits and nuts drop and harvesting begins. The price peaks around May when the harvest season draws to a close. During the 2002 season, prices started around N25/kg ($.21/kg) during January/March and rose as high as N55/kg ($.47/kg) at the season's end by May/June. Historical farm gate prices for raw cashew nuts are unrecorded. Current estimated buying price average is N41/kg ($.35/kg) as at September 2002.

B.2. Cashew Kernels

Nigeria processes approximately the same quantity of kernels as it exports as raw nuts. The majority of the kernels processed, approximately 75%, are processed for the local market. Local kernels vary in quality and grades from those tied in nylons to those packaged in tins and bottles, competing for and in most cases winning shelf space with the few imports. Prices also vary considerably from $5-$14/kg, depending on quality, packaging and marketing outlet. Surprisingly, Nigeria has made inroads into the U.K., U.S. and the Middle Eastern cashew kernel markets by consistently providing quality products in a timely fashion. Besides adding value, these facilities employ up to 550 people during peak production, more than half of them women. However, these processors need support to build and strengthen their position in the international market.

B.2.a. Processing

Individual artisan, "backyard" processors have produced kernels for the local and regional market since the early 1960's. In the early 70's, the now defunct Eastern Regional Government established Premier Cashew Processing Plant, located in Oghe-Enugu on the outskirts of Enugu city in Enugu State. This huge factory was built to process all of the raw nuts produced from the also government-owned 650-hectare cashew plantation adjacent to the factory (roughly 350MT raw nuts), in addition to raw nuts from neighboring Ebonyi, Anambra, Kogi and Benue States. This plant utilized Japanese technology – i.e., fully automated with all of the equipment imported from Japan. This turnkey project required reliable infrastructure (electricity), highly skilled labor (for operation, maintenance and management) and working capital, all of which were unavailable in Nigeria. The plant has been idle and up for sale since the early 1990's.

The Jof Ideal Family Cashew Processing Plant in Owo, Ondo State, started exporting cashew kernels in the late 1980's/early 1990's using labor-intensive Indian technology. The owner hired an experienced Indian cashew production manager to start up the 2,5000MT per year raw nut capacity plant. In less than two years, the Nigerian owned and managed Jof Ideal was fully operational, exporting cashew kernels to the UK. Since then, several other processors have successfully copied Jof's strategy, hiring seasoned Jof employees to start up their own plants. Jof trained managers and employees are highly sought after by new processors.

Processors can be categorized by market outlet – export and local market. Although not all-inclusive, Table 9 includes those processors identified by the study team. The export market contains a few processors who export exclusively. The local market processors/suppliers are more diverse. There are those that process just up to an intermediate stage, then sell to finishers that roast, package and retail. Others perform all of the processing, packaging and distribution.

These processors vary in size and sophistication from the individual artisans to the semi-automated factory. For instance, Agropro, which is based in Okigwe, Imo State was established in 1998 to process kernels for the export market. However, when kernel prices crashed in year 2001, the company was left with no choice but to focus on the unexploited local market. Surprisingly, Agropro is making much profit by concentrating on the domestic market.

Table 9: Nigerian Processing and Packaging Factories

Name	Location, State	Processing	Packaging	Market Focus
Jof Ideal Farm	Owo, Ondo	✔	✔	Export and Local
ACET	Iyere-Owo, Ondo	✔		Export
Kole-Dafe	Isolo, Lagos	✔		Export
Melagro	Oyo, Oyo	✔		No record
Akpan	Uyo, Akwa Ibom	✔		Export and Local
George Mofiet Nig. Ltd.	Ibadan, Oyo	✔		Export
AgroPro	Okigwe, Imo	✔	✔	Local
Asafra	Owerri, Imo	✔		No record
Reliance	Owerri, Imo	✔		No record
Cashew Nuts Processing Industry	Ibadan, Oyo	✔		Local
Fugard Processing Industry	Jos, Plateau	✔	✔	Export and Local
On-Micro Enterprises Ltd.	Ketu, Lagos		✔	Local
Abod Success Investment	Sagamu, Ogun		✔	Local
Ndu-Best Cashews	Ojo, Lagos		✔	Local
Chucks Commercial Venture	Onitsha, Anambra		✔	Local
Embik Investment Ltd.	Port-Harcourt, Rivers		✔	Local
Sem-Nut Industries	Onitsha, Anambra		✔	Local

There are a few processors focused on the export market, including Jof Ideal and ACET, both in Owo. Both have made substantial inroads into the US and UK market by consistently providing high quality products. In response to the demand from ACET's U.S importer, ACET is building a new plant with twice its currently capacity, which should be operational by early 2003. ACET came into the market too in 1998 though it actually started the cashew business in 1994 by exporting raw nuts. When kernel prices crashed, ACET stayed on in the export trade and now, it is making much profit from this and even finds it hard to keep up with demand, hence the need for a bigger factory. In addition, Fugard Processing Industry, Jos, Plateau State exports to the Middle Eastern market. These factories contradict prevailing arguments that West Africa, particularly Nigeria, cannot compete in the international kernel market.

All exporters say the local market cannot afford their products. Our best estimate is that they receive a premium of $400/MT over local prices. They were not as clear, nor as forthcoming on the sale of products that do not meet export standards. It is suspected that they sell those locally.

The majority of processing plants in Nigeria employ the labor-intensive Indian processing technology. The Oyo State Cashew Nuts Processing Company Plc. utilizes the mechanized Italian process but it has the disadvantage of producing discolored kernels resulting from the dripping of CNSL during processing. Under the labor-intensive Indian processing technology, a small-scale plant can process about 180 MT raw nuts per month during peak processing and requires about 550 people. An average of 350 of these 550 employees are women (64%). Figure 11 shows the simple but labor-intensive manual technology, while figure 12 shows the peeling process. A breakdown of the stages and the amount of labor required is provided in Table 10 while the text box at right provides a detailed description of cashew kernel processing and equipment requirements. Nigerian firms will need to determine the best approach to adopt through firm-level feasibility studies.

Processing Steps

The processing of cashew nuts involves:

1. Preliminary cleaning to remove twigs, stones and other debris
2. Calibration to grade the nuts into different sizes
3. Humidifying the nuts to 16% moisture level to facilitate ease of shelling
4. Roasting to remove the CNSL and, depending on the process used, make the shell brittle and easier to crack
5. Second cleaning and cooling; in mechanized processes the nuts are centrifuged to remove any remaining CNSL on the surface.
6. Second calibration, where the nuts are to be cut mechanically, they must be accurately graded before submission to the cutting process.
7. Shelling
8. Separation to remove remaining bits of shell
9. Pre-grading to separate the wholes from the broken kernels
10. Drying for better storage and easier peeling of the testa which shrivels when dry
11. Peeling to remove the testa
12. Grading to international specifications. 26 different grades are exported. They range from 'white wholes' through 'butts,' 'splits,' 'pieces,' and 'baby bits,' depending on the size of the piece.
13. Re-humidifying to 5% moisture otherwise the kernels are too brittle
14. Packing

The critical processes are roasting, shelling, drying, peeling and grading.

Figure 11: India's Raw Nuts Cutting Machine

Figure 12: Typical Cashew Kernel Peelers At Work

B.2.a.1. Processing Constraints

Although a few processors have successfully supplied the international market, they still need help to strengthen and grow their very small, almost negligible market share. Major constraints include the high cost of capital and high staff turnover; more importantly, Nigeria faces a challenge in purchasing and storing raw nuts to process throughout the year. India, the world's largest processor, purchases raw nuts throughout the year at favorable financing rates to supplement their supply. Brazil has a ban on the export of raw nuts and also imports when domestic supplies are short. Since Nigeria has only one production season and raw nuts constitute roughly 80% of production cost, there is a need to develop cost effective methods to keep processors stocked with their raw inputs.

Additional processing constraints revolve around the raw product. Several sources cited difficulty with peelability, requiring additional time and labor to peel the testa from the kernel. Enugu, Ebonyi and Cross River States reportedly produce nuts that are difficult to peel and therefore sell at a discount, compared to other Nigerian cashew producing states. Other important constraints include labor and need to upgrade poor hygiene standards, as kernels to be produced are food products and not raw materials and therefore require good hygiene standards.

Table 10: Stages and Labor Required in Cashew Processing

Stages	No. of Labor Required*	Number of women	%
Boiling	5	1	20%
Cutting	41	10	24%
Picking	82	62	76%
Drying	10	5	50%
Peeling	351	246	70%
Grading	45	20	44%
Filling and Packaging	10	5	50%
Warehousing	6	1	17%
Total	**550**	**350**	**64%**

* This is for a processing plant of 180MT/Month capacity

B.2.b. Product Pricing and Branding

Cashew kernel grades available in the domestic market are also selling at competitive prices (see Table 11). The cashew kernels are usually marketed locally by packaging them in polythene bags, tins and recycled bottles. Roasted kernel prices ranges from N600/kg ($5/kg) to as high as N1,800/kg ($15/kg), depending on quality, packaging and market outlet.

Table 11: Local Brands of Roasted Kernel

Producer	Location	Pack Size	Type of Packaging	Price/Kg (N & $)	
AgroPro	Okigwe, Imo	125g, 250g, and 500g	Plastic/nylon packs	N1,200	$10
Fugard Processing Industry	Jos, Plateau	100g and 200g	Plastic/Nylon packs	N1,450	$12
On-Micro Enterprises Ltd.	Ketu, Lagos	100g and 200g	Nylons and plastic containers	N1,800	$15
Abod Success Investment	Sagamu, Ogun	255g	Plastic containers	N1,765	$15
Ndu-Best Cashews	Ojo, Lagos	500g	Recycled Bottles	N880	$8
Chucks Commercial Venture	Onitsha, Anambra	155g	Recycled Bottles	N1,355	$12
Embik Investment Ltd.	Port-Harcourt, Rivers	155g	Recycled Bottles	N1,355	$12
Sem-Nut Industries	Onitsha, Anambra	500g	Recycled Bottles	N1,240	$11
Local traders/hawkers	Throughout Nigeria	40g, 500g	Nylons and recycled bottles	N600	$5

ENVIRONMENT

A. Government Policy/Infrastructure

When Nigeria achieved independence in 1960, agricultural exports accounted for over 60% of total export earnings and a similar proportion of the gross domestic products (GDP). In the 1970s and 80s, a combination of increasing petroleum oil production and rising prices brought easy and windfall earnings, which diverted Nigeria's attention and encouraged the neglect of agricultural exports. Over the years, there have been different agricultural policies targeted at improving the performance of the agricultural sector. The objectives of agricultural policy can be broadly stated as follows:

- Provision of self-sufficiency in food and raw materials for industries;
- Improvement of the socio-economic welfare of rural people engaged in agriculture; and
- Diversification of the sources of foreign exchange earnings through increased agricultural exports arising from adoption of appropriate technologies in food production and distribution

While the policies are sound, until the recent return to democratic governance, the will and strategies to implement them had largely been absent during years of military rule. The emergence of democracy required the institutionalization of civil governance structures and the revival of the productive value-adding sector of the economy, which is so strategic in addressing the multifaceted socio-economic problems confronting the nation.

Nigeria does currently have access to several export stimulation incentives:

A.1. Federal Ministry of Finance, Budget Office

In the area of exports, exporters enjoy a couple of government initiatives. The Federal Ministry of Finance, working with several parastatals, including the Nigerian Export Promotion Council (NEPC), Nigeria Export-Import Bank (NEXIM) and local commercial banks, has several export-oriented incentives:

a. Manufacture – In- Bond Scheme

The Manufacture-in-Bond Scheme is designed to encourage manufactures to import duty free raw material inputs and other intermediate products whether prohibited or not for the production of exportable goods, backed by a bond issued by any recognized commercial bank, merchant bank, insurance company or NEXIM. The Bond will be discharged after evidence of exportation and repatriation of foreign exchange has been produced.

b. Duty Drawback Scheme

The Duty Drawback Scheme provides for refund of duties/surcharges on raw materials including packing and packaging material used in the manufacture of products upon effective exportation of the final product.

c. Export Expansion Grant Scheme

The Export Expansion Grant Scheme provides for cash inducement for exporters who have exported a minimum of N500,000 (five hundred thousand Naira) worth of processed products. Exporters of processed products initially received a 4% rebate on repatriated proceeds, which, as of 2002, has been increased to 20%.

This scheme was discussed most often by the exporters interviewed. Due to the 6-8 month delay in payment, there is a secondary market for the Duty Credit Certificates. The Certificates are essentially cash, to be collected eventually from the Government. Usually the exporter sells this certificate to importers through the banks at 10%.

d. Export Development Fund Scheme

The Export Development Fund (EDF) is a scheme developed by the Federal Government of Nigeria to provide financial assistance to private sector exporting companies to cover part of their initial expenses in respect of the following export promotion activities:

- Participation in training courses, symposia, and seminars in all expects of export promotion
- Advertising and publicity campaigns in aboard
- Export market research
- Product design and consultancy
- Participation in trade fairs, missions
- Cost of collecting trade information and
- Backing up the development of export oriented industries

Also the Nigerian Export Promotion Council meets regularly with exporters to discuss, develop and improve new incentives.

A.2. The Nigerian Export-Import Bank (NEXIM)

NEXIM was established by the Federal Government of Nigeria by Decree 38 of 1991 to replace the defunct Nigerian Export Credit Guarantee and Insurance Corporation with the main objective of providing a commercially oriented and export-stimulating institution that is committed to bringing about export-led recovery as well as a culture of self-inspired and sustained exporting in Nigeria. The bank was established to provide among others: Credit in local currency to support Nigerian exports; export credit guarantee and export credit insurance; domestic credit insurance when such a facility will help export; credit insurance in respect of external trade, transit trade and entrepot trade; and investment guarantees and investment insurance facilities. NEXIM also maintains a foreign exchange revolving fund for lending to exporters who need to import foreign inputs; raw materials and packaging materials to help export production and a trade information system to support export business. NEXIM also buys and sells foreign exchange.

Presently, NEXIM is mainly involved in the production of financial and risk bearing services, market information export education and advisory services, to mention a few. NEXIM has emerged as the predominant source of short-term trade financing provided to the export sector. The major financial facilities offered by NEXIM in support of non-oil export include:

a. Rediscounting and Refinancing Facility (RRF):

This helps banks to provide pre and post shipment finance in local currency to support non-oil exports. While the refinancing scheme provides a bank with credit of up to one year, the rediscounting scheme provides short-term pre-shipment credit up to 120 days and post-shipment credit up to 60 days. As at the time of this report, exporters were receiving a NEXIM rediscounting rate of 21% (inclusive of bank charges, about 4%) as compared to commercial bank rate of 35%

b. Foreign Input Facility (FIF):
This provides manufacturers of export products foreign currency loans to import capital equipment, packaging and raw materials to produce finished products for export. The facility was intended to benefit small and medium sized enterprises whose assets do not exceed $6 million.

c. Stocking Facility:
This is provided in local currency and it enables manufacturers of exportable goods to procure adequate stocks of raw materials to keep their production at optimal levels.

NEXIM Risk Bearing Services include:

- Export Credit Guarantee Facility
- Export Credit Insurance Facility
- Investment Guarantee and Investment Insurance Facilities
- Interstate Road Transit Scheme to guarantee goods transiting Nigeria to other member states of the Economic Community of West African States (ECOWAS)

In year 2000, NEXIM was able to generate $15.90 million of foreign exchange from its Export Credit Rediscounting and Refinancing Facility (RRF), which represents an increase of 99.5% over levels achieved in the previous year. The foreign exchange generated from RRF operations serves as a barometer of effectiveness of NEXIM's export support activities. Besides these export incentives, the Federal Government still has a long way to go with bureaucratic procedures, particularly at the port and data/information management, which is unreliable and in most cases, not recorded.

Under the first National Development Plan, the Federal Government restricted itself to research activities for improving cash crops production. However, following the emergence of many problems, especially food shortages, the government decided to play a more dynamic role in primary production, beginning from the mid-70s. Consequently, the policy instruments adopted were: Provision of credit; intensification of agricultural research; input subsidy; price support; manpower development and training; mechanization; land reform and international trade regulation. In order to ensure the realization of policy goals, various institutions were established for supervising or for providing some of the essential supporting services required by the sector.

A.3. The Africa Project Development Facility (APDF)

The APDF was launched in 1986 to support the development of competitive African small and medium enterprises, with services that are needed and affordable, working mainly through local institutions and consultants. The APDF has assisted over 460 enterprises in Sub Saharan Africa. APDF helps to improve operations through capacity building and training. While APDF itself does not provide finance, it helps to source financing from the market and to find appropriate business solutions.

B. Socio-Economic Issues

Due to the nature of this project, there is a special need to highlight several socio-economic concerns as well as the business issues. Both criteria are important to the success of any project.

B.1. Environmental Effects

Cashew is an environment-friendly crop. In the semi-arid and dry northern regions, it can be cultivated to check desert encroachment, which is a serious threat in the area. In the southern region, especially the eastern states, it is mainly cultivated to check gully erosion.

B.2 Impact on Incomes

Cashew is tolerant of conditions otherwise considered marginal for agriculture and can therefore provide income where nothing else will. Therefore cashew production must be seen in comparison to other opportunities. A poor cashew crop on marginal soils may be more important than high yield in optimal conditions.

B.3 Impact on Women

Women are employed in the production, marketing and processing of cashew. Development of the processing industry, in particular will create large employment opportunities for women. In processing, they perform the majority of quality checks including grading, picking, peeling and sorting.

B.4. Geographical Distribution

As mentioned previously, cashew thrives in every part of Nigeria, including the southern, middle belt and northern regions. It is an important crop in regional, as well as, national agriculture programs. Development of the cashew industry will assist agricultural efforts in numerous regions, diversifying the benefits accrued.

IV. OPPORTUNITIES AND CONSTRAINTS

A. Opportunities

A.1. Growing Market

There is a growing market for processed cashew kernels and thus raw cashew nuts. The USA presents a large potential market. Approximately 50% of the kernels imported globally are consumed by 20% of the US population. With the increased marketing of health foods, demand for cashew in the USA is growing at the rate of 5% per annum.

In addition, the world market is growing, with demand for cashew expected to continue its increase of 5% per annum. The snack food market segment is growing due to new products such as organic foods (which commands 25 – 50% premium over normal prices), the new consuming countries (Japan, Australia, Spain, Portugal), and increased demand in some minor markets (UK, Germany and Holland).

A.2. Raw Nut Supplier Monopoly

Africa supplies 90% of the raw nuts imported into India. This monopoly supplier position is unknown to the African producer. There are a multitude of competitive bargaining positions available once African producers realize their supplier strength including supplying other processing nations e.g. Vietnam.

A.3. Increased Size

An area of opportunity involves the supply of larger kernels to the world market, and especially to the US market, which is the largest consumer of the large Brazilian nuts. There is a short supply of larger kernels, W180 – W240, which provides an opportunity for other processors and producers since Brazil is the only producer of large size nuts, and experiences high labor costs.

Figure 13: Brazilian vs Nigerian cashews

Brazilian Variety Local Variety

A.4. Increased Volume

There is an opportunity for Nigeria to increase its volume of raw nuts and kernels, especially in terms of kernel export. This is possible through increased cultivation and more value-added

processing, which is already being done in Nigeria, albeit on a small-scale, considering international traded volumes.

A.5. Organic Cashews

Organic snack products are in strong demand, with sales increasing at over 80% p.a. in the US. Discussions with major kernel brokers in New York revealed that there is not at present sufficient volume of organically certified cashew for companies like Planters to develop and promote organic cashews. The majority of Nigeria's production is considered "organic" – i.e. no chemical pesticides and/or fertilizers. Obtaining organic certification takes 2-3 years and requires discipline in terms of collecting and recording information.

In the short term, it may be necessary to bring in external organic certifiers, but in the long term Nigeria should establish its own inspectors. Nigeria currently is gaining experience with organic certification in cocoa. Enterprise for Development International (EfDI), a Nigerian NGO working with farmers' cooperatives, and Organic Commodity Products (OCP), an international buyer of organic cocoa, are collaborating on organic certification of cocoa for export. They are using ECOCERT as a certifying agency and hope to receive certification by September 2002.

A.6. Local Demand for Kernels

There is a local demand for cashew kernels. The local markets and supermarkets are full of Nigerian processed cashew kernels in various packages - recycled bottles, plastic containers - and seasoning – honey roasted, salt and pepper, curry, to name a few. This local and regional market is under supplied. Several processors/packers said they were unable to keep up with demand because of the limited supply of kernels. There is an opportunity for kernel and apple products for the domestic and regional markets.

A.7. Local Demand for Cashew Apple

Seldom discussed but equally important is the cashew apple. There is a thriving local demand for the apple – freshly picked from the tree with the nut attached. The nut is used to hold the apple and discarded once the apple is consumed. Although the apple provides immediate income to the small-scale farmers, the practice of harvesting fruits before they fall naturally produces immature nuts of no commercial value. There are multitudes of opportunities for the apple – juice, plums, to name a few – that in the best case will provide more income than exporting the kernel.

B. Constraints to Overcome

Nigeria has several strikes against it currently, including:

- Bad trade practices and bad image, which result in low value for export
- Discount prices and low quality of raw nuts
- Export of non value-added product (raw nuts) and low export of value-added products (e.g. kernels, etc.), which results in low foreign earnings and loss of employment opportunities

Some specific areas, which Nigeria must address in order to overcome these strikes, are:

B.1. Post Harvest Handling

There are several factors contributing to the poor quality of Nigerian raw nuts including picking immature nuts, improper drying, combining old and new season crops. Through increased awareness and education, the handling and subsequent quality and price of the raw nuts will increase.

B. 2. Improved Planting Material

The majority of Nigerian production produces small sized nuts and several trees are past their prime. There is a need for increased awareness and the introduction of new and improved planting material.

B.3. Cashew Processing Standards

Although processors are exporting to the U.S. and Europe, there is room and need for standards. US products must meet the American Food Industry Standard. Europe also has very tight controls on food standards and safety and of course ethical considerations (child labor, poor pay and conditions, etc.) are also being highlighted. Perhaps a preference for dealing with factories that achieve acceptable standards might be a competitive advantage for Nigerian processors over traditional Indian processors.

V. CONCLUSIONS AND RECOMMENDATIONS

Numerous countries are moving in to take advantage of these opportunities. Initiatives by donors, including USAID's Sustainable Tree Crops program, are providing the technical assistance and funding necessary to develop cashew exports. Several countries, recognizing the profit loss incurred in the trade-off between raw nut export and kernel export, have enacted, or sought to enact, legislation prohibiting the export of raw nuts in order to foster in-country processing. Vietnam's rapid and strong emergence on the scene is partially a result of recent restrictions on Asian raw cashew nut exports, which encouraged Vietnamese companies to quickly develop its processing capacities. Mozambique, at one time a growing powerhouse in the cashew industry, has fallen from this perch. Many Mozambicans believe this failure is due to trade liberalization efforts that kept the Mozambican government from enacting raw nut export restrictions.

Given the level of competition, success in the industry will demand careful firm-level feasibility studies, technical assistance, sustainable supporting organizations, and government support. It will also require astute forecasting of, and mitigative measures against, efforts by competitors to stymie entry.

In light of the opportunities and constraints examined in the subsector assessment, the authors propose a goal 'to transform Nigeria from a low-priced commodity producer to a reliable supplier and exporter of high quality cashew products (organics, kernels, etc.). To achieve this goal, the specific objectives include:

- To increase the dollar value of Nigeria's cashew exports, both raw nuts and kernels, from $25 million to $74 million within 10 years
- To increase jobs, particularly in the rural communities. Employment from processing alone should increase from 122,000 to 375,000 within 10 years. Employment for production, post harvest handling and marketing will also increase
- To improve Nigeria's cashew export trade practices

A.1. Approach

An Industry Action Plan has been developed to supplement the subsector assessment. The IAP details proposed strategies, activities and timelines. Below is a short synopsis of the four key recommended strategies.

A.2. Implementation

In the immediate term, we suggest a focus to increase the volume and value of Nigerian cashew through technical assistance to cashew stakeholders including producers, processors, exports, financiers, etc. Concurrently, Nigeria should penetrate new markets, particularly organic cashew, which receives a 25% premium over traditional kernels, and capitalize on Nigeria's presumed "organic" cashews. Also, Nigeria should increase the awareness of cashew benefits among rural communities through targeted technical assistance and campaigns. For sustainability, the team proposes the establishment of a **Commodity Business Bureau (CBB)**. This CBB will be a private-sector owned entity focused on providing business services and establishing and enforcing international cashew standards. The CBB will work in collaboration with government and multinational organizations. Once established, the CBB will be the focal point for cashew activities, enveloping those mentioned above and expanding to include:

provision of current marketing information; targeted technical assistance; assistance establishing business and financing linkages; strengthened associations and cooperatives; development of standards and enforcement. This last will be particularly important as part of the promotion of the organic niche – it can take up to three years to regain organic certification once it is lost. Most importantly, the CBB will need to transform Nigeria's poor trade image into one of a reliable supplier of high quality cashew products.

Appendix 1: SWOT Analysis of The Nigeria Cashew Industry

In the course of this study, the strengths, weaknesses, opportunities and threats within the cashew market – both international and domestic - have been captured. The purpose of this SWOT – Strength, Weakness, Opportunities and Threats analysis - is to provide basic information for strategic restructuring of the investment appraisal within the industry in Nigeria. The analysis highlights several issues regarding the sub-sector that are critical for both Nigerian and international stakeholders. The observations under each component have been grouped into the general categories: market/price; production; processing; exporting; and labor.

Strengths

Market/price
- Acceptance by the Vietnamese market of Nigerian raw nuts
- The majority of cashew production believed to be "organic", i.e. grown without the use of any agro-chemicals
- Domestic demand for kernels and cashew apple

Production
- Large domestic production with potential for expanding output and exports of raw cashew nuts and kernels
- Environmentally friendly – south for erosion, north for desertification
- The crop is relatively pest and disease free in Nigeria
- Cashew thrives in 10 states in the country with significant amounts of under-utilized land.
- Minimum inputs for production, post-harvest handling

Processing
- Processors successfully exporting cashew kernels to the U.S. and Europe
- Minimum inputs for processing

Export-related
- The existence of a highly professional and well-organized export sector, especially of raw cashew nuts
- Nigeria government incentive to encourage export of value-added product
- Established trading connections with India & Singapore with opportunities for widening the network
- Easy access to sea freight

Labor
- Large supply of unskilled labor in both urban and rural areas
- Employment for women particularly in processing, 64%

Weaknesses

Market/Price
- Weak market penetration and position in the market
- High cost of local capital

- The dependence on exporting cashews as a raw commodity for shelling, particularly in India

Production
- Absence of standards particularly among producers.
- Poor post-harvest handling
- Small sized nuts from indigenous variety
- Declining productivity of old trees

Processing
- The difficulties of peeling off the testa from the kernel on a proportion of Nigeria's production
- Limited history of processing to give reputation in the market
- No market for CNSL – hazardous during processing

Export-related
- The delays and low efficiencies of the ports and shipping operators in Lagos
- Poor Infrastructure

Opportunities

Market/Price
- The increasing world demand for cashew kernels and organic kernels
- The possibilities of creating a very significant critical mass of African organic cashews by linking the different USAID projects in Mozambique, Kenya, Tanzania, Ghana and Nigeria
- Nigeria has close proximity to Brazil and this could become an export market of raw nuts (whether certified as organic or not)
- West Africa is now the major supplier of raw materials to the Indian processing sector. This is a powerful position not yet appreciated by the region. Co-operation between the major exporting countries could lead to improved prices.
- Large and growing domestic and regional market for the absorption of surplus kernel
- Inclusion of cashew in current USAID and GON projects—STCP (Sustainable Tree Crops Programme)/TCDC (Tree Crop Development Committee)
- Profitability will hinge on the ability to obtain premium prices. This is likely to be achieved through increasing the proportion of large sizes or by distinguishing the product through its certification as organic and/or ethical.
- As the majority of production is already organic, organic certification will have no significant impact on either output or costs of production. The only additional costs will be for the administration of the process and the costs of certification. These will be relatively low and have little impact on unit prices.
- Increased awareness of cashew benefits – "cash crop", environmentally friendly – in Nigeria

Production
- Possibilities of improving size grades and reducing testa-peeling problems through the introduction of superior planting material
- Increasing farm and export income by improving grading and post-harvest handling of raw cashews

- Potential for expanding production to the Northern region

Processing
- Building on the existing processing sector to introduce HACCP and (possibly) organic certification so that the processing sector can deliver a premium quality organic cashew kernel matching international food hygiene standards
- Processing of cashew apple products

Export-related
- Increase foreign exchange

Threats

Market/Price
- The fall in international prices both for raw cashew nuts and kernels, due to increasing supplies
- The strong likelihood that other suppliers will obtain organic certification for their production and therefore take the premier position in the market as the organic suppliers of cashew
- Discounted price for Nigerian nuts
- The low credibility of Nigerian products and exporters, particularly in the European market, "poor trade" image

Export-related
- Bureaucratic policies and procedures especially with exports (i.e. ports)
- Smuggling cashew nuts into Republic of Benin

APPENDIX 2: CASHEW APPLE OPPORTUNITIES

Cashew is marketed in three popular forms in Nigeria: as an apple, raw nuts and processed kernels. The apple, with nut attached is commonly sold on the local market and is consumed fresh. Consumers use the nut to hold the fruit and most likely discard the nut after consumption. Consumers prefer the fruit with nut attached believing that it is fresher. If consumed near the trader's stall, the traders usually accumulate these discarded nuts for sale.

The apple/nut is sold by size. During the 2002 season, the smaller size (six fruits) sold for N20/kg while the larger size (four fruits) for N25/kg. The fruit is 5-10 times the weight of the nut and at the beginning of the season sells for the same price and in some cases more than the detached raw nut (N18-22/kg). This provides one explanation for the poor post harvest handling of the nut – i.e. plucking the fruit from the tree with immature nuts attached. The farmers receive more from the fruit with nut attached than the raw immature nuts, which have no commercial value.

The defunct Western Region Government established a fruit-canning factory - Lafia Canning Industry, at Apata, Ibadan in the 1960's to serve as a receptacle for the cashew apple and other fruits from the Iseyin and Iwo plantations. The concept of canning cashew apple, however, did not succeed. The factory is now under lease to Fuman Food Industries. Currently, food processors are experimenting with introducing various types of fruit drinks containing between 20% to 30% cashew juice into the local market.

Cocoa Research Institute of Nigeria (CRIN)

Cocoa Research Institute of Nigeria (CRIN) has a mandate for research into cocoa, cashew, coffee, kola and tea. So far, research works have been carried out on the mechanically extracted cashew kernel oil. It has been discovered that the stability of cashew kernel oil is higher than that of other commercial oils like palm oil, groundnut oil, cocoa butter, etc. This stability has made cashew kernel oil to be more promising for various food and industrial applications. And as refined oil, when compared to other edible oils in the market, cashew nut oil has been found to be more stable at 80 degrees centigrade than corn or groundnut oils. After the oil extraction process the cake obtained as residue has been reported to have high protein content of 40% that can be utilized to enrich some of the local diets. Cashew meal coated with chocolate product has also been developed and its organoleptic properties discovered to be acceptable to consumers.

Current research efforts are mainly focused on the apple because it is still rotting away on the farms. The vitamin C content of the apple is several times higher than that of citrus. It contains about 85% juice which has a sugar content of about 10% mostly invert sugar. Various products have been developed at CRIN from the cashew apple and these include:

- Top quality thermally stable chocolate from cashew, evaluated and acknowledged internationally
- Top quality, sweet (8-12% v/v alcohol) and dry (17-18% v/v alcohol) wines.
- An improved technique for processing cashew apples into juice, drink and jam has also been developed. The non-alcoholic beverage is of a high nutritional value (vitamin C is 170-180mg/100ml juice).
- A locally fabricated juice extractor/processor has been developed to produce cashew apple juice adaptable for use on a cottage industry scale.

APPENDIX 3: CONTRIBUTIONS

	Company	*Contact*	*Title*	*Location*
Private Sector – Nigeria				
1.	Olam Nigeria Ltd.	V. Srivathsan	Chief Executive	Lagos, Nigeria
2.	ACET Ltd	Jide Anjorin	Chairman/Managing Director	Factory, Owo, Nigeria
3.	ACET Ltd	Mr. Okeowo	Manager	Factory, Owo, Nigeria
4.	Premier Agro Oils Nigeria Limited/	Sanjeev Manchanda	Managing Director	Lagos, Nigeria
5.	JOF Ideal Family Farm Ltd	Tunji Fagboyegun	Managing Director	Processing Factory, Owo
6.	JOF Ideal Family Farm Ltd	Mr. Oladimeji	Manager	Processing Factory, Owo
7.	SGS Inspection Services Nigeria Limited	Peter C. Obiazu	General Manager	Apapa-Lagos, Nigeria
8.	Goldchains International Ltd	Boma Anga	Managing Director	Lagos, Nigeria
9.	Unicontrol Commodity Nigeria Ltd	Peter DeMeulenaer	Director	Ikeja, Lagos
10.	On-Micro Enterprises Ltd.	Marshal Onwuka	Managing Director	Ketu, Lagos
11.	Park and Shop	Chris & Isirani	Supervisors	Victoria Island, Lagos
12.	Metro Plaza			Abuja
Private Sector – US				
1.	Sunrise Commodities	David Cottam	Executive Vice President	New Jersey, USA
2.	The Richard Franco Agency	David Rosenblatt	President	New Jersey, USA
3.	Mitchel Beck Company	Gary Cochrane	President	New York, USA
4.	Organic Commodity Products (OCP)	Frank Hicks		Costa Rica, C.A.
Private Sector – UK				
1.	Soil Association Certification Limited	Robert Hardy		Bristol, UK
2.	Essential Trading	Steve Penny		UK
3.	Blair Impex Ltd.	Blair Coutts	CEO	Berkshire, UK
4.	Chambers & Knight Ltd.	David Marchington		London, UK
5.	Delta Crown Fooks & French	Jim Farrell & Peter Bostellmann		Tunbridge Wells, UK
6.	Barrow, Lane & Ballard Ltd.	Mark Gravette		London, UK
7.	Choithrams Company	Andrew Barker		London, UK
8.	Accord Associates	Peter Jaeger		
9.	Accord Associates	Grahame Dixie		
	Company	***Contact***	***Title***	***Location***

Nigerian Government				
1.	Projects Coordinating Unit (PCU)	Dr. Salisu Ingawa	Head of Unit	Abuja
2.	Projects Coordinating Unit (PCU)	Ismaila Adamu	Personal Assistant to the Head of Unit	Sheda-Abuja
3.	Projects Coordinating Unit (PCU)	Gidado Bello		Sheda-Abuja
4.	Nigerian Export Promotion Council (NEPC)	Mathew Iranloye	Chief Trade Promotion Officer	Abuja, Nigeria
5.	Nigerian Export Import Bank (NEXIM)	R. O. Madaki	Chief Executive	Abuja
6.	Nigerian Export Import Bank (NEXIM)	Baba Yusuf Ahmed	Executive Director	Abuja, Nigeria
7.	Nigerian Export Import Bank (NEXIM)	Muhammad Muhtar	Deputy General Manager	Abuja
8.	Nigerian Export Import Bank (NEXIM)	Arua K. Ndukwe	Research Dept	Abuja
9.	Federal Office of Statistics (FOS)	Henry Eteama	Statistician	Abuja
10.	Central Bank of Nigeria (CBN)	Ngozi Egbuna	Agric Studies Unit	Abuja
11.	Central Bank of Nigeria (CBN)	Moses. F. Otu	Principal Economist	Abuja
12.	Cocoa Research Institute of Nigeria (CRIN)	Rev. Oduwole		Ibadan, Oyo
NGO				
1.	Enterprise for Development International (EfDI)	Dr. Charles Akinola	Executive Director	Ikeja, Lagos
Multilateral/Donor Agencies				
1.	USAID	Abdulkadri Gudugi	Agricultural Economist	Abuja
2.	African Project Development Facility, APDF	Akin Adeoye	Project Officer	Lagos, Nigeria

APPENDIX 4: PROJECT BACKGROUND

Before independence, Nigeria's economy was largely sustained through agricultural exports. Major industries such as Unilever Plc, Paterson Zochonis Plc, etc., depended on agricultural raw materials from Nigeria and other Commonwealth nations in the tropics and export trade in agricultural commodities accounted for over 60% of Nigeria's export earnings. Apart from this, the sector also accounted for a similar proportion of the nation's Gross Domestic Products (GDP) and it was the largest source of employment. In the 1970s and 80s, a combination of increasing petroleum oil production and rising prices brought easy and windfall earnings, which diverted Nigeria's attention and encouraged the neglect of agricultural exports. The country invariably lost its competitive advantage in certain commodities, which it painstakingly established.

While one cannot blame agricultural neglect alone for the nation's dwindling export trade in agricultural commodities, other factors such as increase in industrial activities in the country, government policies on local value added commodity processing, finance, pricing, etc., have all contributed to the weakening of the nation's capacity to participate effectively in the commodity export trade. Over the years, there have been different agricultural policies targeted at improving the performance of the agricultural sector and reviving export trade in semi-processed agricultural commodities. These policies focused mainly on:

- Provision of self-sufficiency in food and raw materials for industries;
- Improvement of the socio-economic welfare of rural people engaged in agriculture; and
- Diversification of the sources of foreign exchange earnings through increased agricultural exports arising from adoption of appropriate technologies in food production and distribution

While the policies are sound, until the recent return to democratic governance, the will and strategies to implement them had largely been absent during years of military rule. The emergence of democracy required the institutionalization of civil governance structures and the revival of the productive value-adding sector of the economy, which is so strategic in addressing the multifaceted socio-economic problems confronting the nation.

Nigeria plays a strategic role in the stability of sub-Saharan Africa and the challenges associated with rebuilding the economy of such a huge nation whose economy had been mismanaged and ravaged as a result of poor governance are enormous.

The United States Government through its Agency for International Development (USAID) is assisting the Nigerian Government and its people rebuild the socio-economic and political structures of the nation. Accordingly, a strategic plan, which focused on five strategic goals, was developed. These strategic goals are to:

a. Sustain Nigeria's transition to democratic governance;
b. Strengthen Nigeria's institutional capacity for economic reform and enhance its capacity to revive agricultural growth;
c. Develop the foundation for education reform;
d. Increase the use of family planning, maternal and child health services and HIV/AIDs/STD preventive measures; and
e. Improve management of local infrastructures and the energy sectors.

To help revive agricultural growth, the Government of Nigeria (GON) requested USAID/Nigeria's assistance to determine which agricultural products have the greatest potential to increase foreign exchange and create jobs. The GON is convinced that a realistic business plan to maximize Nigerian's agricultural potential must be based on sound information, an analysis of what actually exists, and a clear understanding of the constraints in the sector that inhibit the GON and the Nigerian private sector from capitalizing on these opportunities.

Chemonics International is working with USAID/Nigeria and Government of the Federal Republic of Nigeria (GON) to meet these objectives. The following three-phase approach was designed to achieve these objectives:

I. Assessment of the Global Market for Agricultural Products;

II. Evaluation of Nigeria's Agricultural Sector; and

III. Agricultural Industry Action Plans

The final result will be the submission of a number of Industry Action Plans (IAPs) that will be implemented as part of a comprehensive agricultural competitiveness program that would be supported by USAID and other international donors as well as the international and Nigerian private sectors.

I. Assessment of the Global Market for Agricultural Products.

The first phase was a broad overview of the world market for agricultural products, including products that are currently, or potentially could be, produced in Nigeria. The global markets, including the Africa region, were evaluated using a rigorous methodology and evaluation criteria that was developed by consultants experienced in global markets for tropical agricultural products. For example, the set of criteria included existing consumer demand, trends in market shares, capital requirements, product distribution, commodity prices and volatility, financial returns, etc. The results of this assessment produced a prioritized list of the most promising global marketing opportunities for current and prospective Nigerian agricultural export products.

II. Evaluation of Nigeria's Agricultural Sector: "The Agriculture Commodity Summit."

In collaboration with the Project Coordinating Unit (PCU) of the Federal Ministry of Agriculture, and the Nigeria Export Promotion Council (NEPC), Chemonics International held a stakeholders' summit on Nigerian agricultural exports in Abuja in January 2002. The summit was attended by more than two hundred participants and stakeholders who helped to identify and recommend, for further study in the Agricultural Industry Action Plans, those commodities that had the greatest potential for creating increased economic growth, external and internal trade, opportunities for employment and increased income and wealth for Nigeria.

Facilitated by local and expatriate consultants, the summit pulled together local experts, stakeholders and public officials who jointly developed a comprehensive list of opportunities matching existing and potential Nigerian agricultural products with current and forecasted world demands. The summit combined completion of questionnaires (during the summit meeting) with the discussion of the rank-ordered list of commodities for domestic production and export potentials.

The summit also created a high profile public and private sector buy-in for this approach to agricultural competitiveness and demand for the "downstream" activities' industry action plans, and possible constituencies/partnerships for the eventual implementation of the action plans.

From the summit, the following commodities were chosen for in-depth study:

1. Ginger
2. Gum Arabic
3. Sesame
4. Cashew
5. Leather/Skins
6. Marine Products (prawn farming)

Following the summit, a team of consultants including expatriate and local industry experts conducted "validation visits." These visits were to selected sites, and stakeholders (exporters, processors, producers, etc.) and were designed to confirm information and gather data necessary for preparing useful action plans.

III. Industry Action Plans

Industry Action Plans are being developed for the top, most promising commodities selected from the agricultural commodity summit. These action plans or "road-maps" will identify weak links in the commodity chain that limit competitiveness and suggest practical steps for overcoming them. This analysis includes private and public sector individuals most active in the selected commodity. The plan will focus on actions for the private sector to follow, particularly individuals interested in establishing and/or expanding their presence in the export of Nigerian agricultural products. The action plan will also identify interventions appropriate for USAID and GON support to both increase and accelerate private sector agribusiness activity within the commodity chain.